

a side PLIIM-based subsystem mounted within said side portion of the housing, and producing and projecting a second ~~planar~~ coplanar laser illumination beam (~~PLIB~~)/field (PLIB) and field of view (FOV) through said ~~second side~~ light transmission aperture and said second imaging window;

an electronic product weight scale operably connected to said bottom PLIIM-based subsystem;

a data communication network mounted within the housing, and establishing a high-speed data communication link between said bottom and side PLIIM-based subsystems and said electronic product weight scale; and

wherein each bottom and side PLIIM-based subsystem comprises:

a plurality of visible laser diodes (VLDs) having different color producing wavelengths to produce a multi-spectral planar laser illumination beam (PLIB) from ~~the side and bottom~~ the respective imaging windows; and

a linear electronic image detection array for capturing color images of objects (~~e.g. produce~~) as the objects are manually transported past said first and second imaging windows of ~~said bioptical system~~, along the direction of an indicator arrow, by the user or operator of ~~the said bioptical~~ system.

Claim 265 (canceled)

Claim 266 (currently amended): A bioptical system which comprises:

a housing having a bottom portion and a side portion;

bottom and side light transmission apertures formed in said bottom and side portions, respectively;

a first imaging window mounted over said ~~first~~ bottom light transmission aperture, and a second imaging window mounted over said ~~second side~~ light transmission aperture;

a bottom planar laser illumination and imaging (PLIIM) based subsystem mounted within said bottom portion of the housing, and producing and projecting a first ~~planar~~ coplanar laser illumination beam (~~PLIB~~)/field (PLIB) and field of view (FOV) through said ~~first~~ bottom light transmission aperture and said first imaging window;

a side PLIIM-based subsystem mounted within said side portion of the housing, and producing and projecting a second ~~planar~~ coplanar laser illumination beam (~~PLIB~~)/field (PLIB) and field of view (FOV) through said ~~second side~~ light transmission aperture and said second imaging window;

an electronic product weight scale operably connected to said bottom PLIIM-based subsystem;

a data communication network mounted within the housing, and establishing a high-speed data communication link between said bottom and side PLIIM-based subsystems and said electronic product weight scale, wherein each PLIIM-based subsystem comprises:

a plurality of visible laser diodes (VLDs) having different color producing wavelengths to produce a multi-spectral planar laser illumination beam (PLIB) from ~~said side and bottom~~ the respective imaging windows window; and

an area-type electronic image detection array for capturing color images of objects (~~e.g. produce~~) as the objects are presented to the imaging windows ~~of said bioptical system~~ by the user or operator of ~~the~~ said bioptical system.

Claim 267 (currently amended): A bioptical planar laser illumination and imaging (PLIIM) based product dimensioning, analysis and identification system comprising:

a housing having a bottom portion and a side portion;

bottom and side light transmission apertures formed in said bottom and side portions, respectively;

a first imaging window mounted over said ~~first~~ bottom light transmission aperture, and a second imaging window mounted over said ~~second~~ side light transmission aperture;

a bottom PLIIM-based subsystem mounted within said bottom portion of ~~the~~ said housing, and employing (i) a first linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a first multi-spectral planar laser illumination beam (PLIB) through said ~~first~~ bottom light transmission aperture and said first imaging window, and (ii) a first linear electronic image detection array having image formation optics with a first field of view (FOV) that is aligned with said first multi-spectral PLIB in a coplanar relationship so as to capture images of objects being moved past said first imaging window; and

a side PLIIM-based subsystem mounted within said side portion of said housing, and employing a second linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a second multi-spectral planar laser illumination beam (PLIB) through said ~~second~~ side light transmission aperture and said second imaging window, and a second linear electronic image detection array having image formation optics with a second field of view (FOV) that is aligned with said second multi-spectral PLIB in a coplanar relationship so as to capture images of objects being moved past said second imaging window.

Claim 268 (currently amended): A bioptical planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising:

- a housing having a bottom portion and a side portion;

- bottom and side light transmission apertures formed in bottom and side portions, respectively;

- a first imaging window mounted over said ~~first~~ bottom light transmission aperture, and a second imaging window mounted over said ~~second~~ side light transmission aperture;

- a bottom PLIIM-based subsystem mounted within said bottom portion of said housing, and employing (i) a first linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a first multi-spectral planar laser illumination beam (PLIB) through said ~~first~~ bottom light transmission aperture and said first imaging window, and (ii) a first area-type electronic image detection array having image formation optics with a first 3-D field of view (FOV), through which said first multi-spectral PLIB is automatically swept in a coplanar relationship with at least a portion of said first 3-D FOV so as to capture images of objects being moved past said first imaging window; and

- a side PLIIM-based subsystem mounted within said side portion of said housing, and employing (i) a second linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a second multi-spectral planar laser illumination beam (PLIB) through said ~~second~~ side light transmission aperture and said second imaging window, and (ii) a second area-type electronic image detection array having image formation optics with a second 3-D field of view (FOV), through which said ~~first~~ second multi-spectral PLIB is automatically swept in a coplanar relationship with at least a portion of said 3-D FOV so as to capture images of objects being moved past said second imaging window.

Claim 269 (previously presented): A bioptical planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising:

- a pair of PLIIM-based object identification and attribute acquisition subsystems,

- wherein each PLIIM-based object identification and attribute acquisition subsystem produces a multi-spectral planar laser illumination beam (PLIB) for illuminating objects during imaging, and employs a linear electronic image detection array with image formation optics having a field of view (FOV) that is coplanar with said multi-spectral PLIB; and

- wherein said bioptical PLIIM-based object identification and attribute acquisition subsystem is programmed to analyze captured images of objects and determine the shape/geometry, dimensions and/or color thereof.

Claim 270 (previously presented): A bioptical planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising:

a pair of PLIIM-based object identification and attribute acquisition subsystems,

wherein each PLIIM-based object identification and attribute acquisition subsystem produces a multi-spectral planar laser illumination beam (PLIB) for illuminating objects during imaging, and employs an area-type electronic image detection array with image formation optics having a field of view (FOV), through which said multi-spectral PLIB is automatically swept in a coplanar relationship during illumination and imaging operations; and

wherein said bioptical PLIIM-based object identification and attribute acquisition subsystem is programmed to analyze captured images of objects and determine the shape/geometry, dimensions and/or color thereof.

Claim 271 (previously presented): A bioptical planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising a pair of PLIIM-based package identification and dimensioning subsystems, wherein each said subsystem employs a 2-D electronic image detection array and is programmed to analyze captured images of objects and determine the shape/geometry, dimensions and/or color thereof.

Claim 272 (previously presented): A bioptical planar laser illumination and imaging (PLIIM) based object identification, dimensioning and analysis system comprising a pair of PLIIM-based package identification systems arranged within a compact point-of-sale (POS) housing having bottom and side light transmission apertures, located beneath a pair of spatially-isolated imaging windows.